

Please write clearly, in block capitals.

Centre number

--	--	--	--	--

Candidate number

--	--	--	--

Surname

Forename(s)

Candidate signature

GCSE MATHEMATICS

F

Foundation Tier

Paper 1 Non-Calculator

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- mathematical instruments.



You must **not** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

For Examiner's Use

Pages	Mark
2 - 3	
4 - 5	
6 - 7	
8 - 9	
10 - 11	
12 - 13	
14 - 15	
16 - 17	
18 - 19	
20 - 21	
TOTAL	

- 1** Write down $\frac{9}{10}$ as a percentage.

[1 mark]

Answer _____

- 2** Write down **one** multiple of 12

[1 mark]

Answer _____

- 3** Here is a list of numbers:

3 4 4 5 6 7 8 11

- 3 (a)** Work out the mode.

[1 mark]

Answer _____

- 3 (b)** Work out the mean.

[2 marks]

Answer _____

4 How many centimetres are in 3.5 metres?

[2 marks]

Answer _____ cm

5 Work out $1152 + 476 - 139$

[2 marks]

Answer _____

Turn over for the next question

- 6** The first part of a show starts at 8.05 pm.
It lasts 45 minutes.

- 6 (a)** What time does the first part end?

[1 mark]

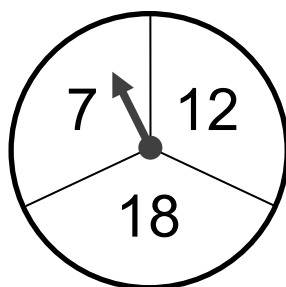
Answer _____

- 6 (b)** After the first part there is a 20-minute break.
The **second** part lasts 35 minutes.
What time does the second part end?

[2 marks]

Answer _____

- 7 A game is played with a fair spinner.



The player spins the spinner twice.

The score is the two outcomes **added**.

- 7 (a) Complete the table to show the possible scores.

[2 marks]

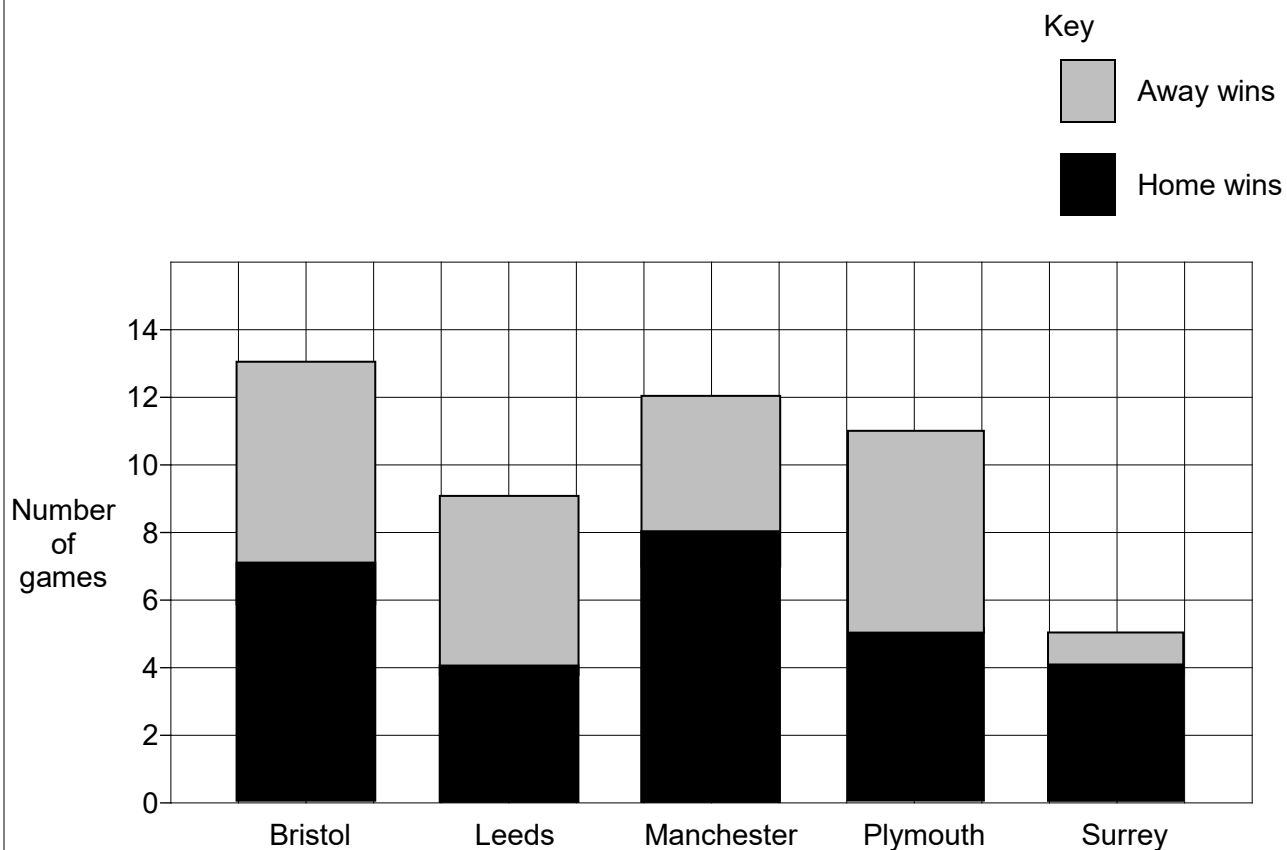
		First spin		
		7	12	18
Second spin	7			
	12			
	18			

- 7 (b) Work out the probability that the score is a **square** number.

[2 marks]

Answer _____

8 Here is information about five basketball teams.



8 (a) Which team had the most **home** wins?

[1 mark]

Answer _____

8 (b) Which **two** teams had the same number of away wins?

[1 mark]

Answer _____ and _____

8 (c) How many **more** home wins than away wins were there altogether?

[3 marks]

Answer _____

9 (a) Solve $x + 17 = 28$

[1 mark]

$x =$ _____

9 (b) Solve $\frac{p}{3} = 6$

[1 mark]

$p =$ _____

10 Plants cost £2.40 each.

You can use this table to work out the cost of different numbers of boxes.

Number of plants	1	2	5	10
Cost	£2.40	£4.80	£12	£24

10 (a) Work out the cost of 3 plants.

[2 marks]

Answer £ _____

10 (b) Ethan pays £52.80 for some of these plants.

Work out the number of plants he buys.

[2 marks]

Answer _____

10 (c) Use the table to write £9.60 : £12 as a ratio in its simplest form.

[1 mark]

Answer _____ : _____

- 11** A shopkeeper uses this formula to work out the cost of bags of oranges.

$$C = 1.8 \times n$$

C is the cost in £

n is the number of bags

- 11 (a)** Work out the cost of 5 bags.

[2 marks]

Answer £ _____

- 11 (b)** There are three oranges in each bag.

Work out the cost of **one** orange if they each cost the same.

Give your answer in pence.

[2 marks]

Answer _____ pence

12 Rearrange $p = r + 3$ to make r the subject.

[1 mark]

$$r =$$

13 By rounding each number to the nearest 10, estimate the answer to

$$\frac{78 \times 11.6}{39}$$

You **must** show your working.

[3 marks]

Answer

14

A point lies on the graph with equation $y = x^2 + x$

The x -coordinate of the point is -3

Work out the y -coordinate of the point.

[2 marks]

Answer _____

15

Is 30×44 greater than 15×90 ?

Tick a box

Yes

☐

No

☐

Give a reason for your answer.

[2 marks]

Reason _____

16 (a) Work out $\frac{1}{5} + \frac{7}{10}$

Give your answer as a fraction.

[2 marks]

Answer _____

16 (b) Work out $\frac{3}{5} \times \frac{7}{2}$

Give your answer as a mixed number.

[2 marks]

Answer _____

17

Leo is a barber.

He charges £5 for a haircut.

He charges 10% extra for hair gel.

One day 25 customers have a haircut.

16 of these ask for hair gel.

Work out the **total** amount that Leo charges his customers that day.

[5 marks]

Answer £ _____

18

Solve $\frac{x}{7} - 3 = 4$

[2 marks]

$x =$ _____

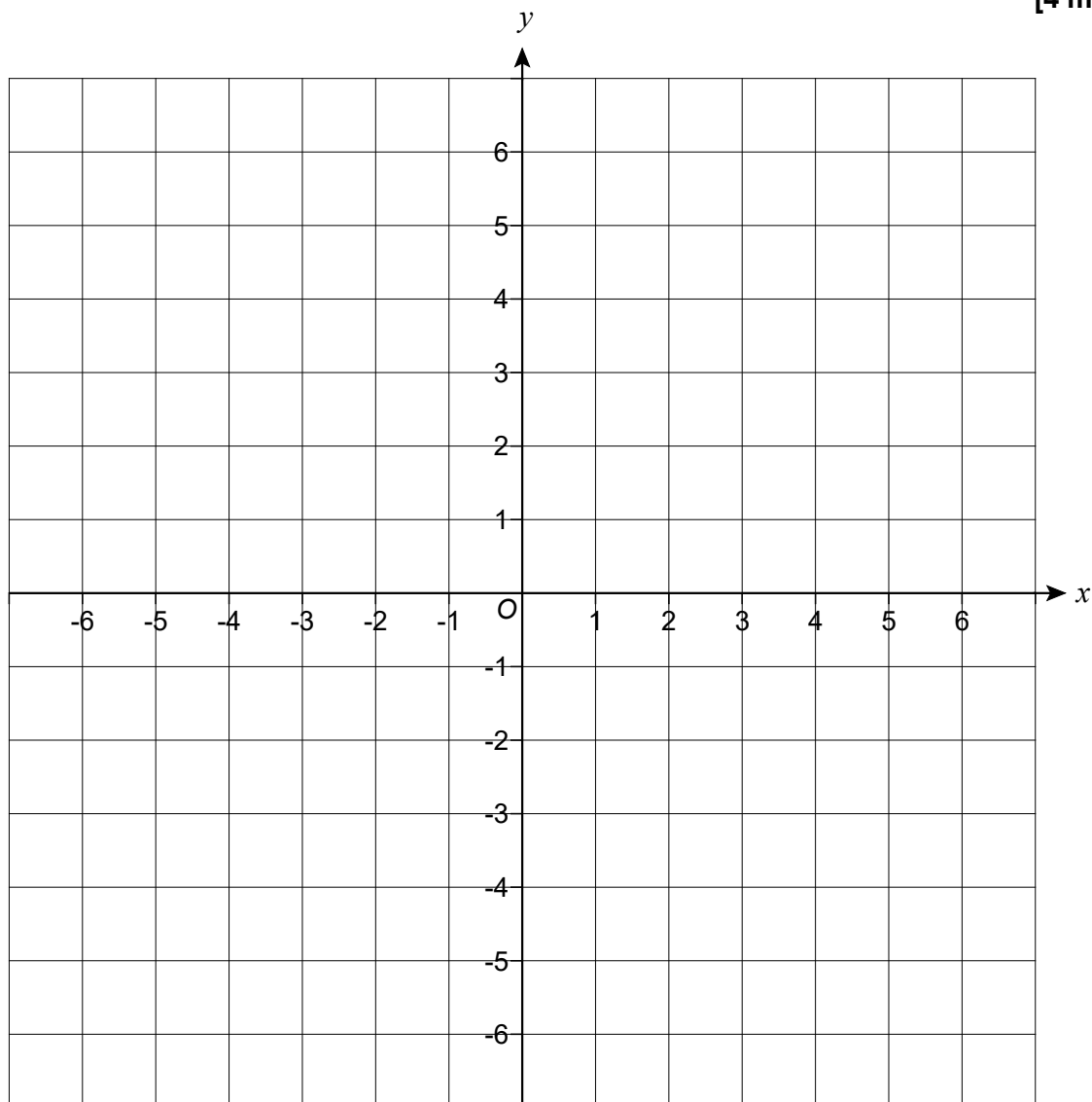
19

Straight line A passes through the points $(-1, 2)$ and $(1, 6)$

Straight line B has equation $y = x$

Work out the coordinates of the point where line A crosses line B

You may use the grid to help you.

[4 marks]

Answer (_____ , _____)

20



At a lucky dip stall, players pick a ball at random from a tub and then **replace it**.

The tub contains 180 red balls
 170 yellow balls
 50 blue balls.

Caroline has a go at the lucky dip.

20 (a) What is the probability that Caroline wins a prize with her first pick?

[2 marks]

Answer _____

20 (b) Caroline has 16 goes on the lucky dip and wins 3 prizes.

Is this **more** than the expected number?

You **must** show your working.

[2 marks]

Answer _____

- 21** The air pressure in a tyre measures 3.2 bar.
Air is leaking out at the rate of 0.2 bar per day.

- 21 (a)** Assume that the air continues to leak at the same rate.
After how many days will the pressure measure 1.8 bar?

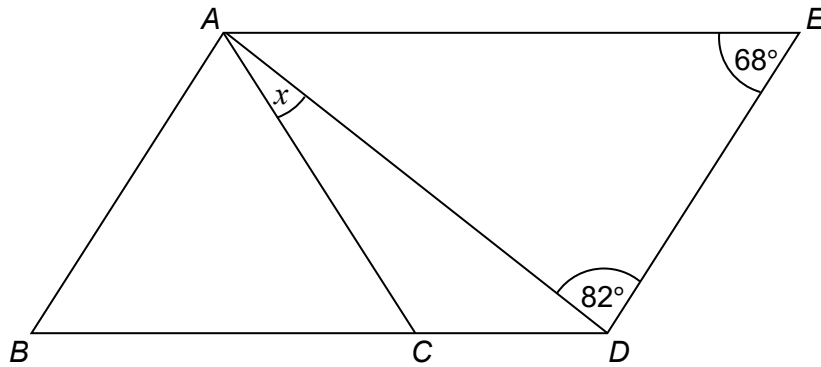
[2 marks]

Answer _____

- 21 (b)** In fact, the rate that the air leaks out decreases each day.
How does this affect your answer to part **(a)**?

[1 mark]

22

 $ABDE$ is a parallelogram. $AB = AC$ Not drawn
accuratelyShow that $x = 38^\circ$

[3 marks]

23 (a) Here are the third and fourth terms of a Fibonacci-type sequence.

_____ _____ 30 47

Each term is the sum of the previous two terms.

Show that the first term is 13

[2 marks]

23 (b) Here are the first and third terms of a Fibonacci-type sequence.

x _____ 5 _____ _____

Each term is the sum of the previous two terms.

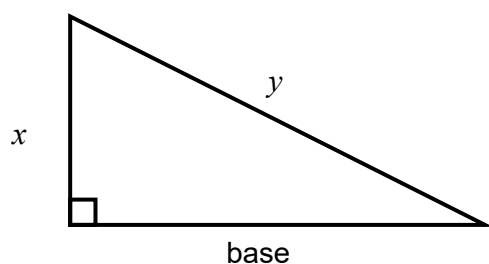
Work out an expression in terms of x for the fifth term.

[3 marks]

Answer _____

24

Robin is attempting to work out the base of **several** right-angled triangles.



Not drawn
accurately

Here is his method with the working for $y = 5$ and $x = 3$

Work out the value of y^2	$5^2 = 25$
-----------------------------	------------

Work out the value of x^2	$3^2 = 9$
-----------------------------	-----------

Work out the value of $y^2 - x^2$	$25 - 9 = 16$
-----------------------------------	---------------

The base is $\sqrt{y^2 - x^2}$	base = $\sqrt{16}$
--------------------------------	--------------------

Tick the correct statement.

☐

The method will **always** give an answer which is a whole number.

☐

The method will **sometimes** give an answer which is a whole number.

☐

The method will **never** give an answer which is a whole number.

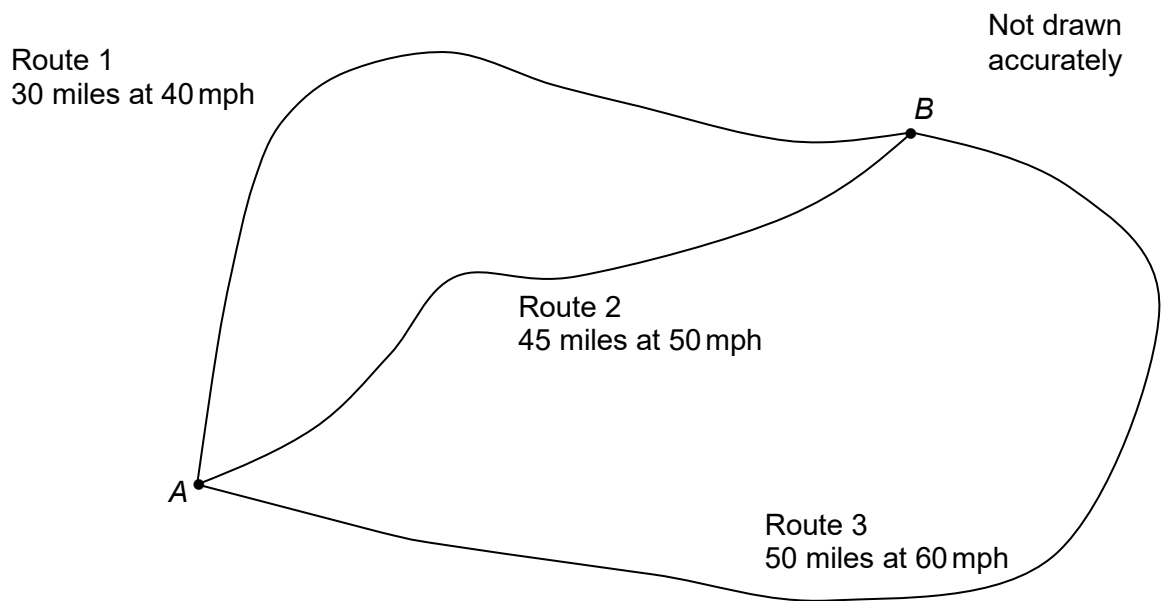
Give examples to support your answer.

[3 marks]

25

The diagram shows three routes, 1, 2 and 3, between two towns, A and B.

The distance and average speed for each route is shown.



25 (a) Which of the three routes takes the longest time?

You **must** show your working.

[4 marks]

Answer _____

25 (b)

Samantha and Daniel take the same time to travel from *A* to *B*.

Samantha travels along route 1 at 10 mph **faster** than the average speed.

Daniel travels along route 2, but not at the average speed for this route.

Does Daniel travel faster or slower than the average speed for route 2 and by how much?

Faster

☐

Slower

☐

You **must** show your working.

[3 marks]

Answer _____ mph

END OF QUESTIONS**Copyright information**

For confidentiality purposes, all acknowledgements of third-party copyright material are published in a separate booklet. This booklet is published after each live examination series and is available for free download from www.aqa.org.uk.

Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright-holders may have been unsuccessful and AQA will be happy to rectify any omissions of acknowledgements. If you have any queries please contact the Copyright Team.

Copyright © 2023 AQA and its licensors. All rights reserved.